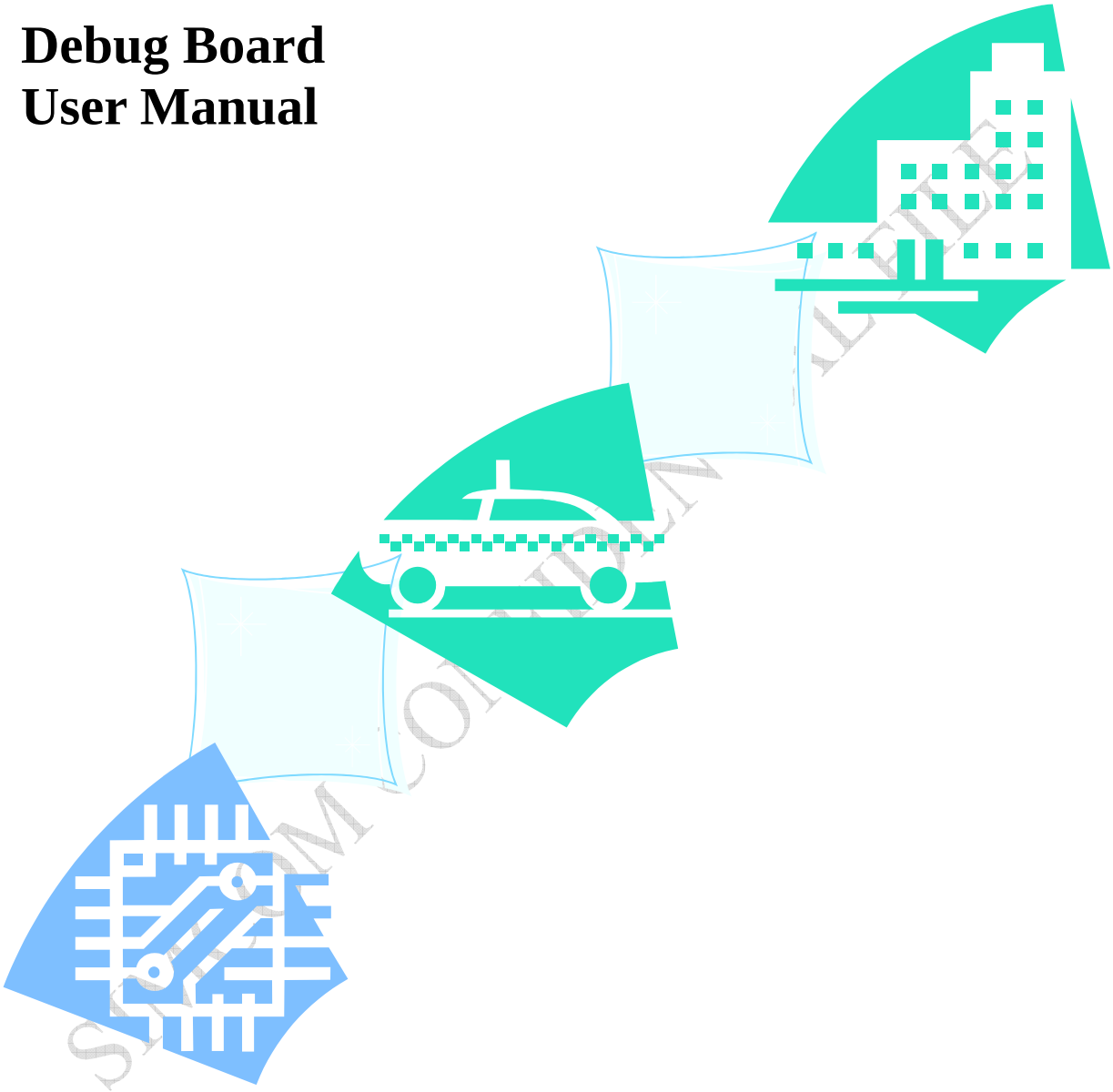
SIM5210

Debug Board
User Manual



Designed by SIMCOM Ltd,.

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Version history

Data	Version	Description of change	Author
2007-01-04	01.00	Origin	dingyiru
2007-06-29	1.1	Update the image of the board	dingyiru

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1 Introduction

This document describes the structure of SIM5210 Debug Board, It also describes how to use this board to support custom to use SIM5210 to design their applications

1.1 Related documents

Table 1: Related documents

SN	Document name	Remark
	SIM5210_HD_V1.1	SIM5210 HARDWARE SPECIFICATION

1.2 Terms and abbreviations

Table 2: Terms and abbreviations

Abbreviation	Description

2 Product concept

The Debug board is designed for custom to design their applications by using the 3G module SIM5210 easily .

All the functions of the SIM5210 can be used by this board. One can use UART, USB interface to communicate with the SIM5210, and can design their camera phone by SIM5210,

There is one UART interface, one USB 2.0 interface, one Simcard interface , one T-FLASH card interface, two camera interfaces, and four audio interface on the board.

One can connect the UART and the USB interface to a computer directly.

2.1 The Debug Board key features at a glance

Table 3: Debug board key features

Feature	Implementation
Power supply	1: Single supply voltage 6.0V – 9.0V at J13and J16 2: 3.5V~4.3V at J19
functions	● UART interface ● USB2.0 interface ● SIMCARD interface ● TFLASH interface. ● Two sensor interface ● Onkey ● Keypad ● Audio interface

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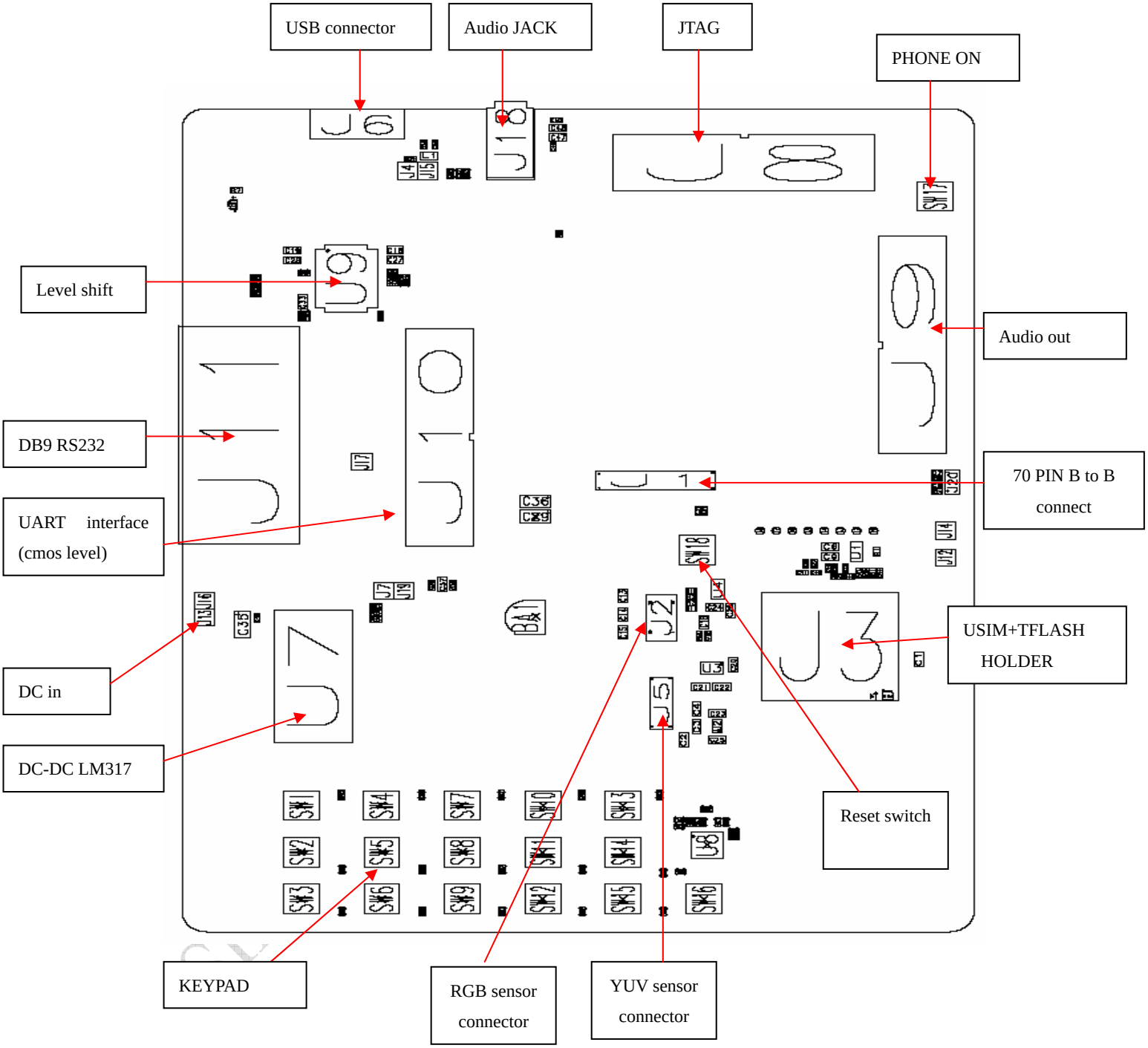
3 Application interface

All hardware interfaces that connects SIM5210 to the customers' cellular application platform is through a 70-pin 0.5mm pitch board-to-board connector. Sub-interfaces included in this board-to-board connector are described in detail in following chapters:

Electrical and mechanical characteristics of the board-to-board connector are specified in *Chapter 6.* There we also order information for mating connectors.

3.1 Board view



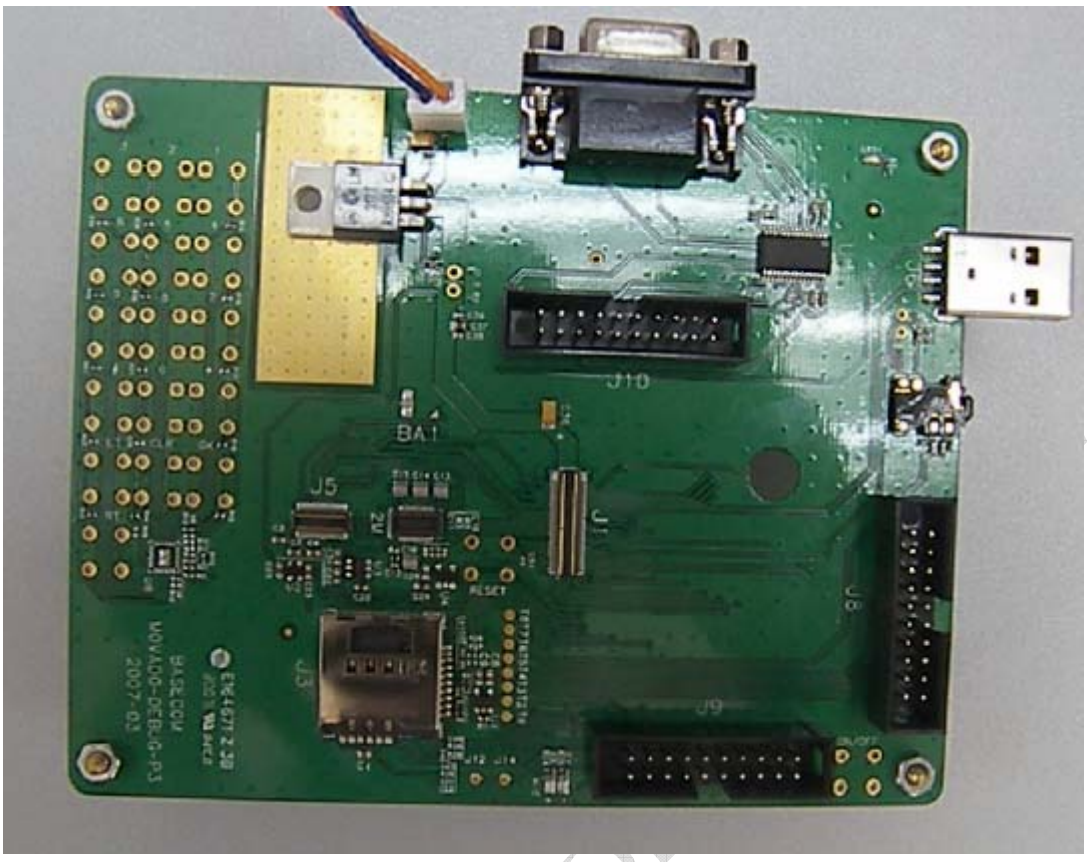


Table 4：On Board Connector description

No	Name	Description
1	J1	70PIN B to B connector, connect to SIM5210 module
2	J2	RGB sensor connector, An OV2640 2.0M sensor can be used
3	J3	USIM and T-FLASH card holder.
4	J4	No use
5	J5	YUV sensor connector, An OV7670 0.3M sensor can be used
6	J6	USB connector
7	J7	DC-DC out test point, connect this pin to J19 when use a external DC power supply, you can use a 3.5V~4.3V DC supply to J19 when you not use a external DC supply
8	J8	JTAG connector, for download firmware only
9	J9	Audio interface connector, MIC, receiver, speaker and line in are in this connector, also the Phone on and a GPIO pin are in this connector.
10	J10	UART connector. the UART interface is in CMOS level.
11	J11	DB9 UART interface. This can be connect to a PC directly
12	J12	Receiver +, connect to a receiver with the J14 together
13	J13	External DC supply input,

14	J14	Receiver -, connect to a receiver with the J12 together
15	J15	no use
16	J16	GND (for external DC power supply)
17	J17	Connect to DB9 connector DSR of J11
18	J18	Audio jack, for headset use.
19	J19	VABT input, if you don't use the DC-DC circuit, you can supply a 3.5V~4.3V DC supply to this pin directly
20	J20	MIC input PIN

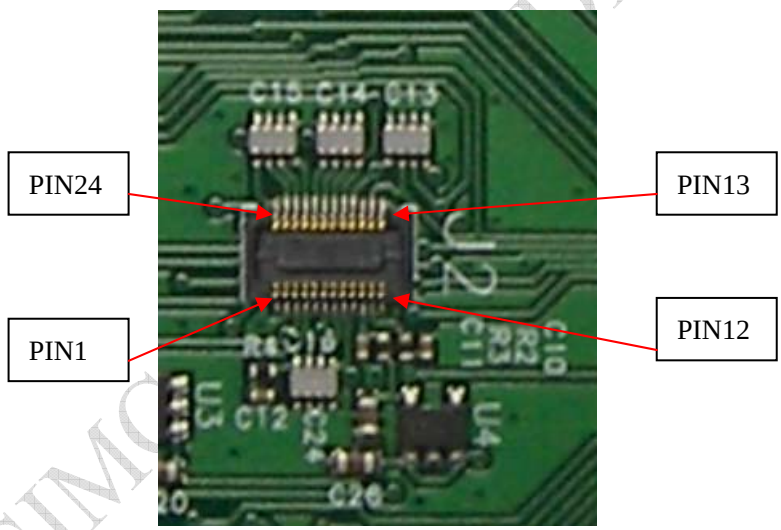
3.2 Interface description

3.2.1 B to B connector J1

This 70 pin plug use to connect to SIM5210 module. The plug is AXK870145WG which a product of NAIS.

3.2.2 RGB sensor connector J2

This 24PIN B to B socket is used to connect a RGB sensor ,the socket is made by HRS,



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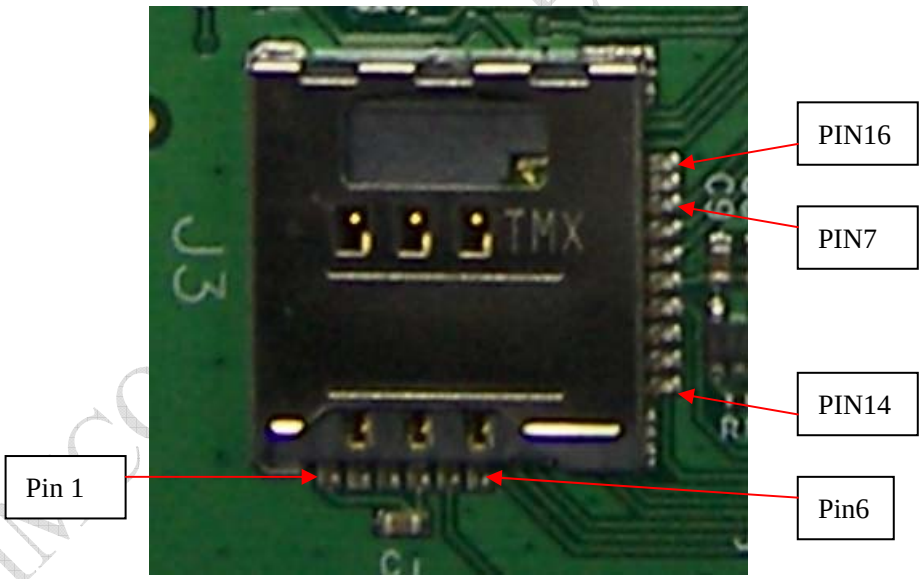
PIN LIST

PIN No	Define	PIN No	Define
1	NC	24	Y0
2	AGND	23	Y1
3	SIO_D	22	Y4
4	AVDD	21	Y3
5	SIO_C	20	Y5
6	RST	19	Y2
7	VSYNC	18	Y6
8	PWDN	17	PCLK
9	HREF	16	Y7
10	DVDD	15	AGND
11	IOVDD	14	Y8
12	Y9	13	XCLK

3.2.3 SIMCARD and T-FLASH card holder J3

J3 is a two connector in one package. the upstairs is SIMCARD holder. downstairs is T-FLASH card holder



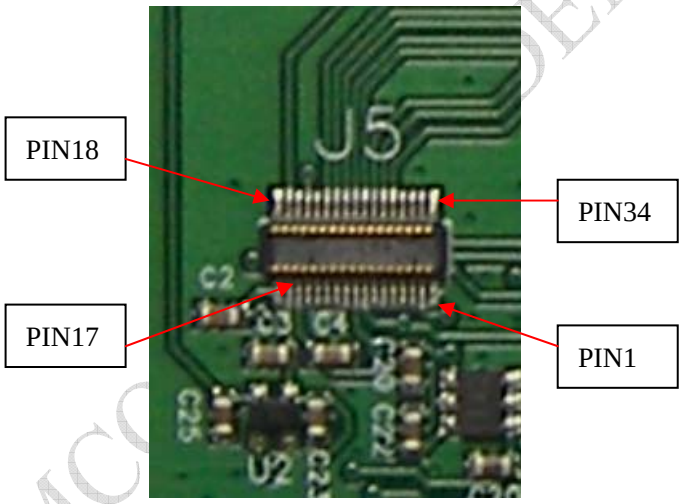
Note：the Pin No isn’t in sequence, detail description is in follow table.

PIN No	Define	PIN No	Define
1	SIMVCC	16	SW2
4	GND	15	SW1
2	SIMRST	7	TF-DATA2
5	SIMVPP	8	TF-DATA3
3	SIMCLK	9	TF-CMD
6	SIMIO	10	TF-VDD
		11	TF-CLK
		12	GND
		13	TF-DATA0
		14	TF-DATA1

3.2.4 J4 just for test use

3.2.5 YUV sensor connector J5

J5 is a 34pin B to B connector which produced by NAIS, the PART NO is AXK834145WG



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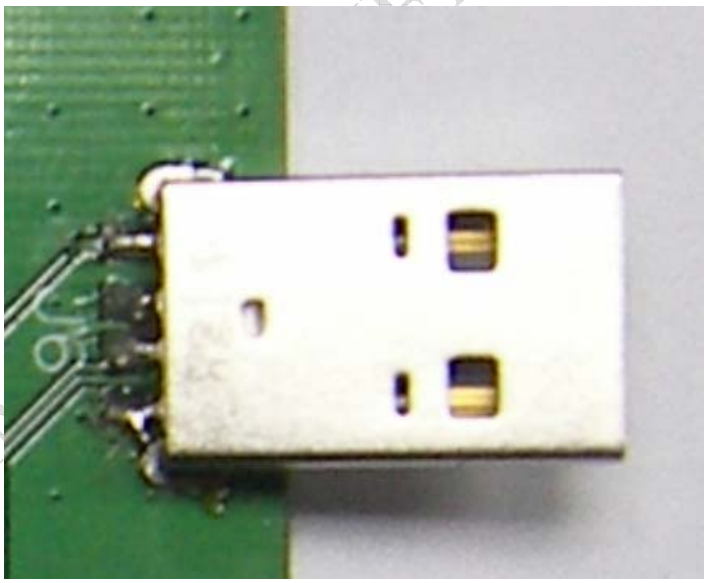
PIN No	Define	PIN No	Define
1	DGND	34	NC
2	PCLK	33	NC
3	NC	32	NC
4	NC	31	NC
5	RST	30	Y7
6	NC	29	Y6
7	NC	28	Y5
8	SIO_D	27	Y4
9	SIO_C	26	Y3
10	NC	25	Y2
11	NC	24	Y1
12	NC	23	Y0
13	PWDN	22	NC
14	NC	21	XCLK
15	IOVDD	20	AGND
16	AVDD	19	VSYNC
17	DVDD	18	HREF

3.2.6 USB connector J6



It is a normal 4Pin USB connector

3.2.7 SIM5210 DC supply input J7,J19

J7 is the DC-DC out , J19 is connected to J7 through a 0 resistor, if one want to use a battery to supply the circuit, the resistor can be removed and connector the battery +to J19.

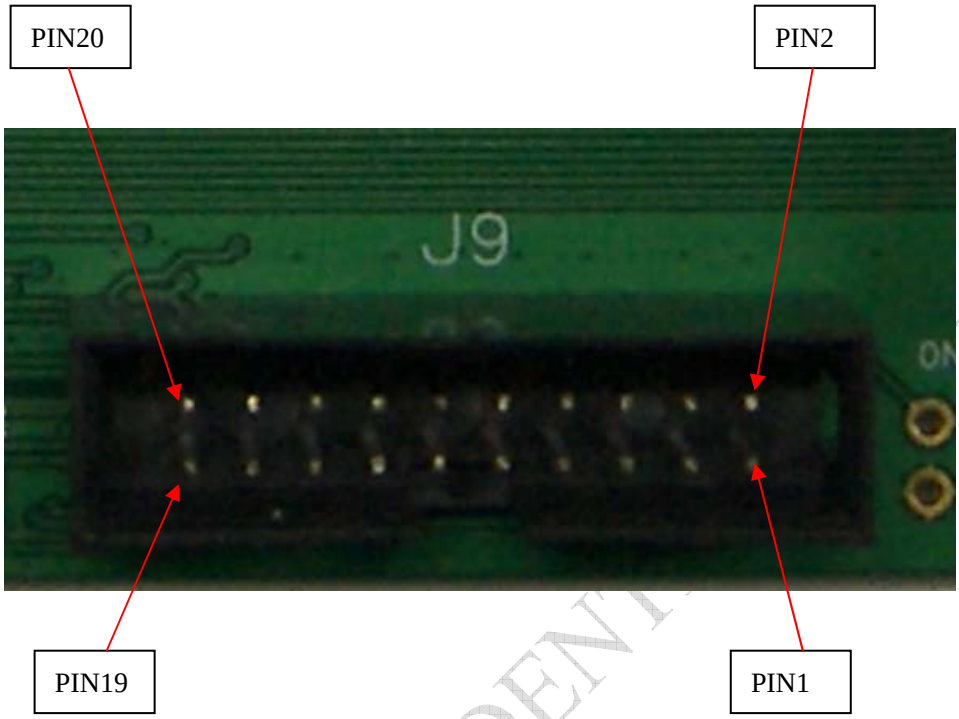
3.2.8 JTAG connector J8

JTAG connector is used to debug the SIM5210, or used to download firmware to the SIM5210 when the firmware is damaged.

Note that one can download firmware through the USB connector except the loader

software in the SIM5210 is damaged.

3.2.9 Audio interface connector J9

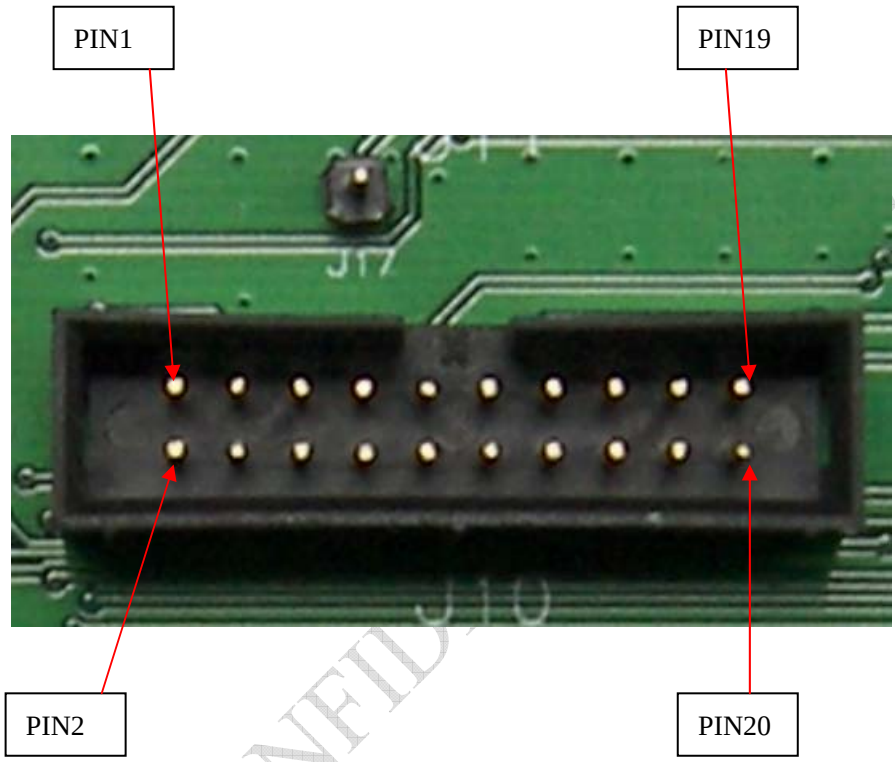


PIN NO	DEFINE	PIN NO	DEFINE
1	SPK1	2	GPIO
3	GND	4	PHONE ON
5	SPK2	6	GND
7	GND	8	PCM_DOUT
9	LINE_IN_L	10	PCM_DIN
11	LINE_IN_R	12	PCM_CLK
13	GND	14	PCM_SYNC
15	MIC_P	16	GND
17	MIC_M	18	EAR_M
19	GND	20	EAR_P

3.2.10 UART interface J10

The odd pins of this connector is connected to the SIM5210 UART interface. The level is CMOS level(VH=2.6V, VL<0.3V) .The even PINs is connected to J11 which is the RS232 level UART.

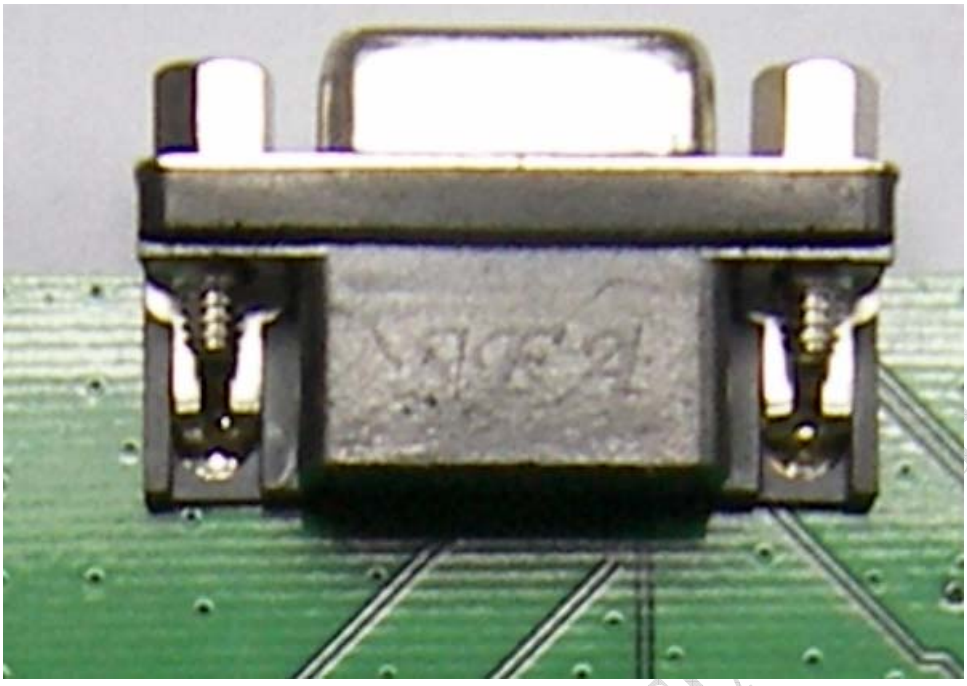
When you want to use J11 connect to a PC, you **must not** connect the odd PINs to even PINs.



PIN NO	DEFINE	PIN NO	DEFINE
1	UART_TXD	2	TXD
3	UART_CTS	4	CTS
5	UART_DCD	6	DCD
7	UART_RI	8	RI
9	UART_DTR	10	DTR
11	UART_RTS	12	RTS
13	UART_RXD	14	RXD
15	GND	16	GND
17	NC	18	NC
19	NC	20	NC

3.2.11 UART (RS232 level) interface J11

J11 is 9 PINs standard RS232 UART interface. It can be connected to a PC directly



PIN No	Define
1	UART_DCD (connect to PC DCD)
2	UART_RXD (connect to PC TXD)
3	UART_TXD (connect to PC RXD)
4	UART_DTR (connect to PC DSR)
5	GND
6	CONNECT TO J17 (DSR)
7	UART_RTS (connect to PC CTS)
8	UART_CTS (connect to PC RTS)
9	UART_RI (connect to PC RI)

3.2.12 MIC/receiver interface J12,J14,J20

J12,J14 and J20 are solder mask ,One can connect the MIC AND a receiver to those point ,note that the MIC's polarity must be correct.

3.2.13 External DC supply connector J13,J16

One can connect these PIN to a DC regulator, the output voltage of the regulator shall be large than 6Vand less than 35V

3.2.14 Headset connector J15,J18

J18 is a audio jack which has 6 pins .it has connected to a MIC and two speakers, the speaker resistor should be a 32 OM